

## AUTOMATICALLY ADJUSTING ANNULAR JET MIXER

### Abstract of the Disclosure

An automatically adjusting jet mixer used in mixing fracturing fluid gel for  
5 gas and oil wells. The mixer has an inner nozzle and an attached piston that  
move axially within the mixer's housing to change the size of the nozzle opening  
thorough which mix water enters the mixer. One side of the piston has an  
upstream area and an opposite side has a downstream area. The downstream  
area is connected to the mix water supply pump and the upstream area is  
10 connected to the outlet of a pressure regulator that maintains a constant  
pressure in the upstream area. The piston and the nozzle move via hydraulic  
pressure exerted on the piston in proportion to the change in pressure in the  
downstream area to a position that will maintain a constant mixing jet pressure,  
thus providing constant specific mixing energy, i.e. constant energy per unit mass  
15 of fluid.